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Science and the Postmodern Challenge

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Abstract
The issue of objectivity of any knowledge claim remains heavily controversial in academic circles. Science and its practitioners claim to be objective, value free and able to attain definite or certain knowledge as opposed to mere opinion/belief whereas such pretensions are contended by the postmodern disposition that insists on the impossibility of definite/certain knowledge and objectivity. Postmodern thinking favours multiculturalism, relativism and a worldview in which claims of truth are contested. How does science respond to these critical matters and what are the prospects of science in the future in the face of these hurdles? What are some of the presuppositions of science that tend to obliterate its claim to certain and objective knowledge? How defensible and justifiable are some of the challenges that post modern thinking bring forth to be confronted by any epistemological endeavour that must be taken seriously as far the issue of objectivity and certainty are concerned? These are among the queries the paper seeks to answer in view of assessing the extent to which the tenuous tension can be appreciated and resolved. The exercise hopes to achieve this using the analytical and critical tools of philosophy.

Key words: Science; Objectivity; Modernism and Postmodernism

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INTRODUCTION
The successes of science and its applied version, technology are palpable and evident in the lives of humans today; from medicine and health, agriculture, transportation, communication to engineering. Such phenomenal feats are manifestly significant in this era that Harold observes "scientists have done their work so thoroughly and accurately, that today there is a strong presumption in favour of any idea that is set forth in the name of science. Humans have almost come to believe that science can explain everything and do nearly everything" (Harold, 1979, p. 90). This image of science comes under series of skeptical and ferocious attacks by post modern thinking as regards the claims of science with respect to objective and certain truth. Thus, scientists and science critics are engaged in some sorts of contest as regards the place and influences of social beliefs, interests and values in the development of knowledge in science especially with claims and counter claims of objective truths or subjective constructions. How these issues are justified and can be best assessed comes into focus in this paper. In doing this, the paper seeks to answer the question of the extent to which science can lay claim to certain and objective knowledge and the future of scientific knowledge in face of such challenges posed by post modern thinking. First, I shall begin by clarifying operational terms in this discourse.

CONCEPTUAL CLARIFICATION

Science
Science was defined by George Sarton as the acquisition and systematization of positive knowledge. By "positive", Sarton meant information derived empirically from the evidence of the senses. This definition has the virtue of being succinct, but does not explain the methodological

procedures employed in science, how these methods differ from other systems of knowledge, the historical process by which these methods came to be adopted, or why other methods were ultimately rejected (Fuller, 2006, p. 6). The term 'science' etymologically is of Latin root, from the term "scientia" to know in the verb form or meaning knowledge in its noun form. Oraegbunam (2010, p. 58) attests to this thus; "science means a body of knowledge which proceeds from observation, experimentation, testing of hypothesis and culminating in scientific theories. This idea of science is the strict designation since broadly speaking; science (*scientia*) means knowledge whether artistic, scientific or otherwise". No wonder then the *Oxford English Dictionary* defines science as the state or fact of knowing. Its meaning today has significantly shifted from its root as its usage evokes such a limited idea to refer to the activities of specialists in the social disciplines of psychology, sociology, anthropology but especially the physical disciplines of biology, chemistry, physics, geology, and astronomy, etc.. No wonder then, Izu notes that the word 'scientists' has become associated with laboratories, test tubes, microscopes, telescopes, and the like contraptions (Izu, 2009, p. 302). Aigbodioh (1997, p. 3) outlines the four basic characteristics of science as; specific, public, impersonal and objective. Science as used in this paper means western natural science and it is seen as a method designed to discover knowledge that is considered by some criteria to be reliable. The principle of verification was the anchor upon which the rise of modern science which gave birth to positivism as the foundation of empirical knowledge claims. This verification principle gave pride to the positivists and this pride made Karl Popper devised a criterion for demarcating science from pseudo-science through his thesis of falsification.

Postmodernism

Post modernism though very difficult to define; it literally means "after modernism". It refers to an eclectic movement, originating in aesthetics, architecture and philosophy according to Ryan Bishop (1996), in *Encyclopedia of Cultural Anthropology* espousing a systematic skepticism of grounded theoretical perspectives. It is not a set of doctrines or truth claims but a completely new way of looking and approaching the world of ideas. Though a fluidy and elusive term, it brings a seemingly cohesive new approach to literature, history, architecture, education, law, sociology, philosophy, linguistics and virtually every discipline, including the physical sciences. The post modern challenge also affects popular culture through cinema, education, internet, TV and other media. In other words, post modern thinking is pervasive, affecting every area of life. Moreover, whose effects are becoming ever more encompassing since the post modern revolution is still happening. Its emergence in philosophical parlance is traceable to Jean Francois Lyotard's publication of *The Post Modern Condition, though its development owes a lot to the works of earlier philosophers.* With Lyotard's classical distinction between narrative knowledge and scientific knowledge, his claim that narrative knowledge can give to scientific knowledge a legitimacy that is now lost to the latter's claim of providing a grand meta-narrative. According to Dadachanji (1998, p. 172) in the realm of science studies, postmodern skepticism in its radical form challenges the view that science gives us objective knowledge about reality on a universal scale, and it goes further to cast the scientific enterprise as an oppressive force. It takes the position that all knowledge is produced by social interactions, deeply influenced by social prejudices, and therefore valid only in the temporary, localized contexts.

Scientific Method

The development of procedural rules for scientific operations is key to the progress of science. Attempts to conceptualise and characterise these rules have had a very long history. In their work, *The Scientific Method*, Okon & Edeh (2011, p. 45) state that the development of methods in science remains instrumental to the growth of science itself. Thus many thinkers at different epochs have made modest attempts to construct what passes for scientific method from different perspectives. From the ancient materialists through to Bacon in his rejection of the simple enumerative inductive method of science and its replacement with the eliminative induction set the stage form set the stage for the modern scientific outlook championed by the Continental rationalists and British empiricists and later thinkers on the methodology of science to include: Kuhn, Lakatos, Feyerabend, Popper and Quine. According to Uduigwomen (2007, pp. 24-5) science as a progressive enterprise involves the use of the following procedural steps as constituting its method: formulation of problem, planning and designing of research, collection of data, analysis of data and the conclusion. In fact, in order to be termed scientific, a method of inquiry must be based on gathering observable, empirical and measurable evidence subject to specific principles of reasoning. In other words, it consists of collecting of data through observation and experimentation and the formulation and testing of hypothesis. The scientific method is a process for experimentation that is used to explore observation and answer questions. Scientists use the scientific method to search for cause and effect relationships in nature. In other words, they design an experiment so that changes to one item cause something else to vary in a predictable way. From the foregoing, one could summarise the steps of the scientific method to include: Ask a question, Do a background Research, Construct a hypothesis, Test the hypothesis by doing an experiment, Analyse the data and draw a conclusion and finally, communicate the results. The scientific method is assumed to give humans a neutral standpoint outside relatives of culture and history.

THE PREVALENCE OF SCIENCE IN HUMAN LIFE AND SOCIETY

Human life and human society are in every way being touched by science that to say we live in the scientific age is to state the obvious. A few decades ago; the impact of science was not as pervasive as it is in this century. Its nature and relevance have continued to evolve in very significant ways that seems the future of humankind to a large extent dependent on the prudent and responsible use of scientific knowledge, discoveries and technological products. Van Melson (1997, p. 131) opines "it is the task of our generation not merely to develop science and technology but also to do this with the correct vision of the end pursued. If man is not to be a slave of technology and the technological order he created, then the end to which this order is oriented must become visible in and through order". Uzoma (1997, p. 142) lends his voice thus "the continuity or discontinuity of humanity's existence on this planet earth depends to a large extent on the wise use or misuse of the scientific and technological discoveries. Modern technology should be seen as a means to an end, which is the improvement of the quality of life of men". To achieve the above, Aja (2001, pp. 173-4) asserts that man must maintain the distinction between himself and the machines of his creation. Linkages of himself to machines and technologies that would make him irrevocably dependent on the lower order/reality would be anti-evolutionary. The modern man must stand above his physical technologies if he is to avoid their becoming his shell and the principles of their organization anthill.

SCIENCE AS AN ATTEMPT TO UNDERSTANDING REALITY: THE JOURNEY SO FAR

The surroundings of man have always attracted the concern of man to understand and explain why things behave the way they do. Right from the ancient era through the contemporary times, man has continuously exercised his curious nature to account for the nature of things/reality. Roughly, one can say that the ancient period of western thought, several people projected general ideas in the attempt to account for the basic urstuff of reality. Frankfort *et al.* (1977, p. 12) write:

> "the ancients, like the modern savages, saw man always as part of society, and society as imbedded in nature and dependent upon cosmic forces. For them nature and man did not stand in opposition and did not, therefore, have to be apprehended by different modes of cognition. [N]atural phenomena were regularly conceived in terms of human experience and... human experience was conceived in terms of cosmic events... The fundamental difference between the attitudes of modern and ancient man as regards the surrounding world is this: for modern scientific man the phenomenal world is primarily an 'It'; for ancient - and also for primitive - man it is a 'Thou.'"

They add further that

> "primitive thought naturally recognised the relationship of cause and effect, but it cannot recognise our view of an impersonal, mechanical, and law like functioning of causality. For we have moved far from the world of immediate experience in our search for true causes, that is causes which will always produce the same effect under the same conditions. [T]he primitive mind . . . looks, not for the 'how,' but for the 'who,' when it looks for a cause. [T]he gods as personifications of power among other things fulfill early man's need for causes to explain the phenomenal world" (Frankfort *et al.*, 1977, pp. 24 & 26).

While most of their contributions and specifications were cosmos-centered, their ideas greatly influenced later thinkers. In the medieval times, to account for the nature of the universe/ reality recourse was made to the divine realm. Thus many of their philosophical thoughts were theo-centric in nature; even though most classical works of Plato and Aristotle were revisited and remoderated by great Christian thinkers to suite the emphasis of the times. With the coming of the enlightenment; there was a shift from revelation and the censorship of Church authority and monarchical structures for what passes for knowledge to enthrone man with emphasis on the capacity of reason to attain valid, certain and reliable knowledge was paramount. In the sixteenth and seventeenth centuries the Aristotelian philosophy came under serious attack. First was the presentation and ultimate victory of the Copernican (Aristarchean) conception of the solar system, which removed the earth from the centre of the universe; and second was the Galilean-Newtonian physics, which refuted the idea that all motion is caused, and treated the earth and the heavens as being the same kind of existents obeying the same laws. While the sensible and rational faculties in man are key in an attempt for man to come to the knowledge of the external world; man became in fact the measure of all things, to use Protagoras' words. It is indeed instructive to note here that the stage was well prepared for the flourishing of modern science with the immense contributions of notable philosophers to include: Rene Descartes, Francis Bacon, Isaac Newton, Immanuel Kant, etc..

Galileo Galilei (1564-1642), a father of scientific method during the period of religious conservatism, brought about by the reformation and counter-reformation, unveiled his new science of motion. Neither the contents of Galileo's science, nor the methods of study he selected was in keeping with Aristotelian teachings; whereas, Aristotle thought that a science should be demonstrated from first principles, Galileo had used experiments as a research tool. Galileo nevertheless presented his treatise in the form of mathematical demonstrations. Within the modernist tradition a distinction is typically drawn between the "inner world" of mind and the "external world" of material. Within this dualist metaphysics, the importance placed on the individual mind is sensible primarily to the extent that mental processes are

advantageous to our actions in the world. In this sense, the perfect companion to the fully functioning mind is an objectively knowable and rationally decipherable world. It is in this respect that the work of Enlightenment figures such as Isaac Newton and Francis Bacon were of pivotal importance. Their writings convincingly demonstrated that if we view the cosmos as material in nature, as composed of causally related entities, and available to observation by individual minds, then enormous strides can be made in our capacities for prediction and control. It is indeed the precise determination of the cause-effect relations among the elements making up the world that we typically define as knowledge. It is important to understand that this, in itself, was a bold and innovative step in terms of scientific method. The usefulness of mathematics in obtaining scientific results was far from obvious (Feldlay, 1999, p. 133). This is because mathematics did not lend itself to the primary pursuit of Aristotelian science: the discovery of causes.

The works of Francis Bacon established and popularized an inductive methodology for scientific inquiry, often called the Baconian method, or simply put the scientific method. Francis Bacon's demand for a planned procedure of investigating all things natural marked a new turn in the rhetorical and theoretical framework for science, much of which still surrounds conceptions of proper methodology today. Francis Bacon introduced the eliminative induction in his *Novum Organum* (1620) as an attempt to describe a rational procedure for establishing causation between phenomena based on induction. It was radically different from the form of induction employed by the Aristotelians. As Bacon puts it: "another form of induction must be devised than has hitherto been employed, and it must be for proving and discovering not first principles (as they are called) only, but also the lesser axioms, and the middle, and indeed all, for the induction which proceeds by simple enumeration is childish" (Jardin & Silverthorne, 1983, p. 73). Bacon's method relied on experimental histories to eliminate alternative theories. In this sense, it is a precursor to Popper's falsificationism. However, Bacon believed his method would produce certain knowledge rather than tentatively justify adherence to knowledge claims. Bacon criticized induction by simple enumeration as hasty and lacks the rigour of scientific pursuit. In place of it, he came up with a formulation which he believes will make use of experimental method. For him, the process of exclusion is the foundation of true induction.

SCIENCE AND THE QUESTION OF OBJECTIVITY

The first question is that of scientific realism; whether science objectively tells us about the world or do we construct reality. The view that science is objective because it is empirical (based only the data that appeal to the senses), rational (reasonable or logically defensible) and that its presuppositions are obviously true is under intense challenge in the post modern thinking. Osuala (1982, p. 12) states that the scientific method constitutes the most adequate approach to the discovery of truth, and certainly it has demonstrated its worth particularly in the physical sciences. For Osuala the method adopted in science follows certain dependable steps that guarantee objectivity. They include; certain phenomena are observed; a problem situation develops and it is noted and classified; crude relationships are tentatively identified and elaborated; a more or less formal hypothesis is derived; a design is developed to test the hypothesis; the hypothesis is verified or refuted; the results are subjected to further tests and refinements, and finally the results are integrated with previous concepts of science. When one meticulously observes the aforementioned procedures, does it preclude the possibility of error, bias or prejudice? Or better put, with the use of measurement as an alleged means of reaching objective judgments, judgments having at least a high probability of expressing truth regarding objective reality. The question that comes to mind is whether agreement among subjects; that is, intersubjective agreement prove that there is objective truth?

According to Brown (2002, p. 448) there is a traditional view of science which allows that social factors may play a role in the generation of theories. But it holds that such corruptions are filtered out in the process of testing. This is the well –known distinction between the logic of discovery and the logic of justification. This view is now largely untenable. There is simply too much contrary evidence produced by sociologists, historians, and feminist critics of science to allow us to think that science works this way. Science seems to be shot through with social factors. There is even an argument raised by Okruhlik (1994) that this is inevitable. It is based on two assumptions: first, social factors play a role in the generation of theories; second, rational theory choice is comparative. This second point means that theories are chosen on the basis of how they fare compared to one another with respect to nature, not by being directly held up by nature. Kuhn claims science is a social enterprise and as such is also quite subjective. He argues that every individual choice between competing theories depends on a mixture of objective and subjective factors. The post modernists are suspicious of authoritative definitions and singular narratives of any trajectory of events (Bishop, 1996, p. 993). Post modernists attacks on science are based on the belief that there is no true objectivity, as the authentic implementation of the scientific method is impossible. To many scientists, the very idea that we construct reality is absurd, and yet even in the most analytic of philosophical traditions, the question of external or internal realism, as Putman dubbed the approaches is a very live issue. Bas Van Frassen in his

The Semantic Image, while proposing a semantic account of theories based on esotetic (question and answer) logic, famously argued in favour of internal realism- what is real is what our theories tell us, and there is nothing more. So in that case, what we believe to be true is constructed by scientists as they build and test theories. This follows Quine's famous paper "On What there is", in which one's ontology is determined by the quantifiers of a logical sentence that expresses your best theory.

According to Fuller (2) the power of science seems to rest on three pillars; one is science's distinctive social organization, which enables concentrated periods of both team work and criticism, nowadays done on a global scale with considerable material resources. Another is concerted political effort to apply the results of scientific research to all aspects of society; finally is the control that scientists continue to exert over how their own history is told. Past diversions and failures remain largely hidden, resulting in an airbrushed picture of 'progress' otherwise absent from human affairs.

Advocates of scientific neutrality have argued vehemently that scientific knowledge is not coloured by cultural biases and evidently free value judgments which is even supported by Galileo and documented by Lipscombe and Williams (6) that the conclusions of natural science are true and necessary, and the judgment of man has nothing to do with them. D'Andrade (1995, p. 404) in criticizing the post modernist attack on objectivity states "science works not because it produces unbiased accounts but because its accounts are objective enough to be proved or disproved no matter what anyone wants to be true". The idea here is the preponderance of post modern thinking that in postmodernity, we find a weakening of reason, a breaking down of homogeneous, unifying models of knowledge, and "a plurality of non-homogeneous models and paradigms of rationality, which cannot be linked, but are tied together only by the specificity of their particular domain of application", Montuori (1998, p. 4). In other words, knowledge becomes relative and contextual, any pretense at linear progressive development is removed, and the fascination and faith with the new is replaced by a sense of irony and severe doubt in the ability of science, technology, and reason to improve the human condition. Even as efforts at improving the human condition are often rightly viewed with great suspicion, herein lies also the danger of "postmodern abandon".

The point must be made that what underpins the whole scientific enterprise is the idea that there is a world out there that we are denoting when we speak our theory sentences. And that too, post modernism view suggest we construct reality for political reasons rather than cognitive ones. Kuhn, Feyerabend, Hull and feminists philosophers of science all noted that political power games in science are not only real things but necessary aspects of science as it is practiced. For Wilkins (4) politics is a way to ensure that research traditions do not get stuck on suboptimal solutions. Referring to the thinking of Thomas Kuhn, Brueggmann (1) writes; "scientific knowledge is to some extent a political achievement whereby power is criticized to shape perception and interpretation in one direction rather than in another. To the extent that scientific knowledge is a political, rhetorical achievement, it is not objective in any positivistic sense. That is, the interest of the knower intrudes powerfully into what is known". Or again, it is ideological. In fact, a thinker like David Bloor considers subjectivity to be the critical factor and does dominate in scientific endeavours (Physics World watch, 23). Scientists, however, strive to be completely objective and to eliminate subjective bias before, during and after their work. Never the less, there is some element of subjectivity. Ergeny Feinberg gave the following example; after certain number of experiments that agree with the predictions, people assume the theory to be proved. But how many experiments are needed? This is a subjective decision that depends on the nature and quality of the experiments and experimenters. Thus, science has a subjective element but it is dominantly objective.

In a similar vein, Luaer (2003, p. 7) remarks that "… theory change is not a rational process; it is a circumstantially determined, political shift in the allegiance of a knowledge community. A change from one scientific framework to its successor does not occur because scientists have compared all the available evidences for the two and rationally selected the better one". In science, a theory is seen not as absolutely true but to be provisional and approximate. Science makes a web or network of understanding into which known facts can fit. This coherence is central to the recognition of truths. Science forms a basis for action because of the power of prediction. After all, when sociologists are passengers on board plane, they – like scientists – expect the laws of physics not to change before the plane lands safely. And although quantum theory is taken as the basis of truth, the problem is that explaining its truths can sometimes only be achieved in the language of mathematics. So the nearest that one can come to an answer is that science is a rationally coherent structure of comprehending the world.

EVALUATING THE IMPORTS OF POST MODERN CHALLENGES TO SCIENTIFIC KNOWLEDGE, SOCIETY AND MAN

Popper as a post modern philosopher in his discourse on scientific methodology gives a place to religion, culture, metaphysics, communal ideas, prejudices and anticipations. Thus, one sees that he gives some recognition to the empirically unverifiable realm of thought which is in contrast to the positivists according to whom all empirically unverifiable statements are meaningless. However, it is to be noted that Popper unduly subordinates all other realms of human knowledge to the scientific.

Popper sees other aspects: religion, metaphysical, cultural only as constituting the pre-scientific step that contributes to the eventual development of science. On their own, they seem to have no valid claim to knowledge. This attitude smacks of scientism, an over emphasis on the scientific method as the authentic method of acquiring knowledge. This to my mind is a reductionistic approach to knowledge as every reality can be viewed from diverse perspectives, each of which requires its own method. Man's world is multidimensional and so knowledge should not be reduced only to the level of the empirical. Feyerabend is more forceful in his contention that science has no greater authority than any other form of life. Its aims are certainly not more important than are the aims that guide the lives in a religious community or a tribe that is united by a myth (Feyerabend, 1978, p. 299). In fact, Feyerabend's epistemological anarchism denies normative status to any methodological principles which agrees with Rorty's rejection of any privileged epistemological position for philosophy over other disciplines. This is important when one realizes that the goal of scientific activity is to construct knowledge considered to be reliable according to science's own criteria of reason and experience, as embodied in methodologies such as naturalism, uniformity, induction, repeatability, efficient causation, falsifiability, and multiple working hypotheses.

Dilworth (2006, pp. 203-6) observes that the development of the physicalist line in the form of modern science has, on both the empirical and theoretical levels, been more fruitful than the development of any other epistemology. The practical successes of modern science are also generally thought to be great, those that perhaps first come to mind being in the realm of medicine. Here however one must ask what should constitute an overall improvement in the situation of humankind, and then consider whether modern science has actually led to such an improvement. As regards medicine, for example, it has been claimed that thanks to the influence of modern science the average life-expectancy of a large portion of the world's human population is greater now than it was in the past. On the other hand, however, we are today witnessing mass starvation in Africa which can in part be linked to the decrease in infant mortality due to the employment of modern medical techniques.

Given the pace at which science has so advanced and affected several aspects of human life positively, the tendency is to see everything in the light of the scientific point of view. Thus, science seems to have been enthroned and decorated with the crown of knowledge per excellence; the most rational of all human enterprise; the authentic way of arriving at truth and as well, it has been robed with the garment of objective truth. Science has been institutionalized in the society and it has become the watch dog for every human activity in contemporary times.

In this regard, Feyerabend (1978, p. 295) cautions strongly that we should not increase our professional qualifications at the expense of our humanity. And to this extent science can become ideological and all ideologies should be seen from perspective. He therefore calls for the liberation of all methodological constraints because they distort the talents of man and that every knowledge claim is context dependent.

If the above is not done, then it is capable of resurrecting the polemics between two cultures that prompted a famous conference led by Charles P Snow, called at Cambridge in 1959 and published in the volume: *Two Cultures and the Scientific Revolution.* The terms of the polemics were well synthesized by Franscesco Barone as follows: "the central theme of the polemics regards the weight and importance to give in a modern education, to literary-humanistic formation or to scientific-technical education. On the one hand, the humanists' insist on the superiority of literary formation as the only formation capable of arousing the sense of values, of giving a meaning to life, of bringing to light ends and the ultimate goals which permit us to orient ourselves and to orient the use of the instruments at our disposition, including those of science and technique. On the other hand, the scientists' accentuate the superiority of scientific and technical formation, calling on its capacity to construct a serious and mature though, able to resolve the problems that have for centuries tormented the concrete life of humanity and that become always more numerous in the present era. Artistic and literary production has for them, at the most, only a value of diversion and evasion that, even it is appreciable in itself, ends up distracting person from real questions".

Given the complex nature of reality and the cumbersome nature of expensive researches; the need for interdependence and collaboration of methods informed by various disciplines cannot be underestimated. The resulting imperative is informed by the fact of interconnectedness of reality or all that there is. In fact, the post empiricist philosophy of science as championed by Thomas Kuhn, Mary Hesie and others have suggested the acceptance of other forms of knowledge into our theories of knowledge, truth and ontology. Rorty (1980, p. 102) for example, argued that the privileged position accorded science in contemporary culture is uncalled for. Rorty's position is in consonance with the post modernist philosophers like Michel Foucault and Jacques Derrida who have debunked the meta-narrative privileges accorded to scientific narrative. Such should not be misread to mean non relevance of scientific conceptual schemes but a need for a synthesis.

If it is true that every ideology should be seen from perspective, it follows that there is no particular philosophy, theory, ideology (science inclusive), fact, opinion, belief that is sufficient in itself. Thus, no knowledge can exhaust completely all that is needed to be said or known about truth or reality. Therefore, scientific

paradigms are not superior to any other paradigms of human endeavours; all fields of intellectual study are important so long as they value and maintain standards of honest and critical inquiry. Holding of arms as partners in the common search for solutions that will benefit humankind is here advocated. This is the only disposition that can guarantee the gradual shift and moving beyond reductive and disjunctive thought which can assist us in bypassing post modern anxiety and lead us to a participative rather than a bystander world where we are aware of creating context but not foundations, trust but not truth.

CONCLUSION

The attempt in this paper has been to estimate the claims and counter claims of those who perceive science as having access to objective reality in a way and manner so unique and has been responsible for the immense transformation of the society for the good of man on the one hand and the post modernist scholars who contest the superiority complex of science in terms of objectivity. Politics, social status, wealth, religious values and other factors are sometimes involved in scientific debates and controversies but that does not mean that those factors ultimately decide the merit or acceptance of scientific theories. Explanatory power, agreement with other data and existing theories, falsifiable predictions and empirical tests eventually dominate as self correcting forces in scientific inquiry. In as much as these influences are evident and undeniable in the scientific endeavours and enterprises, the need to exercise caution and honesty, cooperation and partnership is key and critical in a much more complex world where man is indeed on a threshold courtesy of several challenges modern science and technology pose. The aforementioned, is in tandem with Tauber's view that avoiding the dogmatism that had defined both extremes in the recent science wars and presenting a conception of reason that lifts the discussion out of the interminable debates about objectivity and neutrality. He does this by projecting an understanding of science as an evolving relationship between facts and the values that govern their discovery and application. Within this context, truth and objectivity function as working ideals and serve as pragmatic tools (Tauber, 2009). This call by post modern thinking ought not be seen as a device to bring about the destruction of truth and the enthronement of relativism but an encouragement for the scientists to be more modest in their pronouncements so that the public is not oversold on what science can do.

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